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ABSTRACT

This paper presents a model that profiles organizations as they attempt to implement strategic distance learning. This model, Stages of Organizational Technology Capability for Distance Learning, identifies behaviors exhibited by business and industry that maximize use of technology for education and training at a distance, and ultimately institutionalize their efforts. The model comprises the following four stages: (1) separate/sporadic distance learning events; (2) experienced distance learning events; (3) establishment of organizational distance learning policy; and (4) institutionalization of distance/distributed learning. It is the organization with a Stage 4 Distance Learning Capability Profile that exhibits the strongest success rate for designing and implementing distance training. This type of organization has evolved into an institution that facilitates interdisciplinary teamwork; understands the strengths and weaknesses of information and communication technology; manifests distributed decision-making; supports broad access to organizational technology; and is receptive to innovative budgeting strategies. The Stage 4 organization also recognizes a dynamic core distance learning team and provides comprehensive documentation of an organization-level technology plan. Highlights of the paper include a discussion of organizational technology capability to provide distance training, explanation of the four stages of the model, and conclusions related to overcoming barriers to institutionalization of distance training efforts. (Author/DLS)

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How to Maximize Use of Technology and Institutionalize Distance Learning Efforts

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Abstract

Research and field work by Schreiber has resulted in the development of a model that profiles organizations as they attempt to implement strategic distance learning. This model, "Stages of Organizational Technology Capability for Distance Learning," identifies behaviors exhibited by business and industry that maximize use of technology for education and training at a distance, and ultimately institutionalize their efforts.

It is the organization with a "Stage 4" *Distance Learning Capability Profile* which exhibits the strongest success rate for designing and implementing distance training. This type of organization has evolved into an institution that facilitates interdisciplinary teamwork, understands the strengths and weaknesses of information and communication technology, manifests distributed decision-making, supports broad access to organizational technology, and is receptive to innovative budgeting strategies. The Stage 4 organization also recognizes a dynamic core distance learning team and provides comprehensive documentation of an organization-level technology plan.

Introduction

Business and education specialists, trainers and managers traditionally have looked to developments in communications technology to deliver distance learning. Now, after a century of dramatic change and innovation in organizational and instructional hardware and software, telecommunications and satellite technologies are poised to support significant improvement in the interactivity, collaboration and real-time delivery of distance education and training. Yet with such promise, not all organizations are successful in their efforts to deliver distance learning.

To realize the full potential of distance learning, corporations and agencies must apply an analytical approach to the design and delivery of events, select and utilize organizational technology effectively, and establish a collaborative support structure within the organization to maintain and sustain efforts (Pisel, 1995; Schreiber, 1995). Often times distance training applications are not defined by an organization's business goals and objectives. The result is an event that may be effectively implemented (from a procedural perspective) but contributes minimally to an organization's strategic gain. Or, the technology used to deliver a distance learning event may have been selected simply because it is what the company owned, not because it provides the most effective medium for delivery of instruction. Finally, the organizational technology and instructional personnel may have been treated as marginal costs rather than core costs of distance learning (Green). This results in front-end expenditures which may significantly exceed expectation (Picard) and produce less than desired overall return-on-investment. (Note: Green describes core costs as the "costs of doing business" (p. J2) and are represented by budgeted line items. Marginal costs are "non-documented overhead or embedded costs" (Green, p. J2) and are

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often bundled into already existing core accounts.) Whatever the specific causes, initial distance learning efforts can be dismal when critical components of the process are overlooked or misunderstood.

Distance and distributed learning represents a process composed of multiple components which involves diverse personnel, including technical and non-technical staff in the organization. Employees from management information systems (MIS), broadcasting, and integrated technology (IT) functions must collaborate with instructional designers and training specialists from human resource management (HRM) departments and learning centers. The need for sophisticated and strategic distance training demands that telecommunications experts, specialists from computer services and business operations, as well as, instructional designers and training specialists, no longer function separately or isolated from one another.

Knowledge of the roles and responsibilities traditionally exhibited by staff helps to improve collaborative efforts among diverse experts for new efforts such as business-driven distance learning. However, even with the availability of prescribed models for design and implementation of distance training, there is continuing difficulty on the part of employees and organizations to participate in cooperative efforts that are systematic and rational (Dipboye, 1997). This may be attributed to the diverse background experiences and intellectual perspectives that make up the personalities of the individuals involved. Overcoming this and other barriers or constraints within the organization, however, is critical to maximizing utilization of technology and institutionalizing distance learning efforts.

Organizational Technology Capability to Provide Distance Training

Designing and implementing distance training that contributes strategically to the organization requires not only a new organizational chart, but often a transformation of the corporate culture itself (Cronin). Maximizing utilization of technology to deliver distance and distributed learning is not dissimilar to reengineering processes in that there is a redefining of roles and responsibilities. Compelling influences from technology and education experts, as well as, executive management, requires that the traditional corporate hierarchy evolve into a more flexible institution that facilitates teamwork, collaboration with internal (as well as, external) business partners, and distributed decision-making.

Field work and research by Schreiber (1998) has identified the primary cultural characteristic of a corporation, agency or institution which significantly impacts effective implementation of distance training as the organization's level of capability to utilize technology. This concept of *organizational technology capability* describes an organization's degree of sophistication with which technology is applied to distance learning to resolve business needs.

The stages of organizational technology capability for distance learning are illustrated in Figure 1. These stages are best described as the level of maturity an organization exhibits in understanding, acquiring and using technology to deliver distance training. The "maturity level" discussed here is similar to that researched by Paulk, et al., which references data information systems (1993). Paulk describes a maturity level as "a well-defined evolutionary plateau toward achieving a systematic and systemic process" (p. 7). (For more information

about maturity levels, see: Paulk, Mark et al. (1993). Capability Maturity Model[SM] for Software. Version 1.1. *Technical Report CMU/SEI-93-TR-024.*)

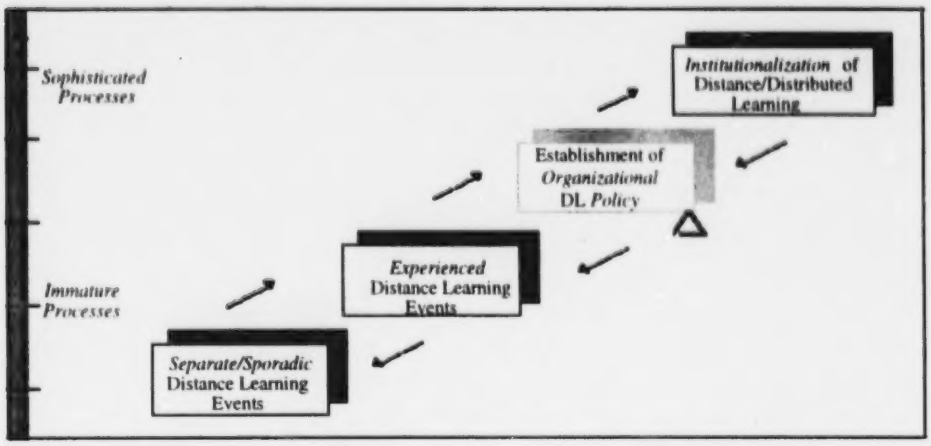

Figure 1. Stages of Organizational Technology Capability for Distance Learning

Note. Edited and reprinted with permission from *Distance Training: How Innovative Organizations Are Using Technology to Maximize Learning and Meet Business Objectives.* Jossey-Bass Publishers, Inc.

There are four primary stages of capability which an organization may experience when utilizing technology to deliver distance and distributed learning. The first stage represents an organization that is just *beginning* to implement distance learning. This organization currently delivers separate and sporadically planned distance education and training events. Each event is sponsored and budgeted by an individual function or department. And one area of the organization is unaware of what another area is doing. The application of distance training is fragmented at this stage.

The second stage of organizational technology capability is manifested by distance education and training events that are repeated or duplicated by the organization. The organization is now considered somewhat experienced with distance training. The corporation or agency often forms an interdisciplinary team at this time and the participating members respond to staff and management inquiries and recommendations regarding distance training.

The ultimate capability stage for implementing distance training is illustrated by the organization that understands the strengths and weaknesses of various delivery tools, correlates instructional materials development to these strengths and weaknesses, and truly maximizes utilization of the technology. This organization also has successfully institutionalized its efforts in distance and distributed learning.

As an organization evolves from a level of immaturity to a level of sophistication in its application and utilization of technology to deliver distance learning, however, it experiences a point of transition that is pivotal to its evolutionary progress. This stage of

corporate development is defined by the establishment of organizational policy and procedure regarding distance and distributed education and training. These policies and procedures are driven by organizational vision and mission, and subsequent distance learning events and programs are recognized for strategic contributions and response to business needs.

Figure 1 illustrates organizational capability for maximizing use of technology to implement strategic distance and distributed learning. Following is further explanation of the various maturity levels an organization may experience and the significant and unique influence each bears on an agency's or institution's ability to successfully deliver, support and sustain strategic distance training efforts.

Separate/Sporadic Distance Learning Events

An organization's initial attempt at distance learning often includes a single training event, with a migration toward multiple events which are sporadically planned and separate or unknown from one sponsor (or department) to another. An event's target audience is identified however, and individual characteristics are analyzed. The designers and developers of each distance training event define clearly the instructional goals and generally meet expectations of the participants.

In the first level of the maturation process, an organization's capability to technologically support distance and distributed learning is limited. Each distance training event is spearheaded by an individual staff member or an individual department, independent of input or collaboration from other functions in the organization. The technology used to deliver the instruction is rented, leased, or procured in some other way for a short time. If the technology is owned by the company or agency, it's access is often controlled (or greatly influenced) by the sponsor(s) of the distance training event.

Research indicates that the success of distance training relies on linking intended performance outcomes to the business goals and objectives of the organization (Eskow, 1997; Green, 1997; Robinson and Robinson, 1996; Steward, 1995; and Newman, 1997). The more aligned performance outcomes are with a company's corporate mission and vision, the greater the strategic impact of the distance training event in providing solutions to business problems (Schreiber, 1996). Such alignments also result is improved documentation of an organization's distance learning activities and broader communication among staff and management of the effects of distance learning, as well as, the strengths and weaknesses of various technologies to deliver distance learning. Employees begin to understand corporate education and training needs relative to specific business requirements (Steward, 1995).

In the early stages of an organization's technological capability to support distance learning, few of the aforementioned objectives are realized. No link exists between the distance training event and strategic planning by the organization. There is little understanding of the strengths and weaknesses of organizational technology to deliver distance learning. Absence of a technology plan also results in uninformed and often expensive decisions regarding procurement of hardware and software to deliver distance education and training. And finally, because the distance training event occurs in relative isolation of other business activities, communication about distance learning throughout the organization is minimal and collaboration is overlooked.

Experienced Distance Learning Events

As an organization's experience increases in delivering distance training, its technological capability to support distance learning matures. The initial distance education and training events become standard practice and replication occurs. At this stage of Organizational Technology Capability for Distance Learning, a corporation or agency often forms an interdisciplinary team and the participating members respond to staff and management inquiries and recommendations.

Members of the interdisciplinary team represent the diverse content expertise needed to enhance an organization's capabilities to provide distance learning. Consequently, the distance learning team may include one or two individuals from each of the following organizational functions: executive branch, information technology, network systems, broadcasting, communications, instructional design, and training or performance consulting. This team contributes as a core steering committee for the organization's distance learning efforts. The primary strength of the team is its ability to facilitate collaboration among diverse content experts.

Collaboration among diverse content experts (including information systems engineers, performance consulting professionals, and executive management) is a recognizable characteristic at this level of organizational maturity. The impact of successful collaboration on distance learning ensures a higher probability that the distance training event (and subsequent distance learning programs) will yield the organization's intended outcomes to meet business needs. Robinson and Robinson (1996) explain that the phenomenon of collaborative efforts can result in the following: (a) increased accuracy of analysis, (b) effective identification and accountability for processes and procedures associated with the task or event, (c) increased investment of time and ownership in support of team effort, (d) improved diagnosis and documentation of strengths and weaknesses of task or event, and (e) development of relationships based on trust and respect. It is the significant collaboration at this second stage in the model that becomes critical to ongoing maturation by the organization for technological capability to support distance learning.

Establishment of Organizational Distance Learning Policy

The first step in establishing organizational policy and procedure for technological support of distance and distributed learning is to develop a *technology plan*. It is the role of the interdisciplinary distance learning team to collaboratively develop a plan which aids the organization in the identification and selection of technology to deliver distance training (Schreiber, 1996; Green, 1997).

An organization's technology plan guides decision-making regarding procurement and utilization of technology. It provides policies and procedures for analyzing cost-benefits, allocating resources, and controlling budgets. A well-developed technology plan is a component of an organization's mission and strategic statements, and is defined relative to the organization's business goals, initiatives and challenges for the near-future (Green). Also, an organization's technology plan should include (a) an overall financial plan for routine amortization and replacement of computers, software, and other key hardware/software components, (b) a defined role for information technology and www resources in the distance learning effort, and (c) a strategic plan for the role of information technology in

instruction and distance training, as well as, dissemination of information that is content specific.

An organization's technology plan provides a stable and predictable process to facilitate the identification and selection of appropriate distance learning delivery media. It establishes access to diverse delivery media, accounts for flexibility, and aligns utilization of organizational technology with company priorities and business objectives.

Broad access to diverse distance learning technology critically affects organizational distance learning policy and procedure. It prevents rigid or demanding delivery strategies which may constrain implementation or result in missed opportunities (Cronin, 1994, pg. 247). Planning for flexibility facilitates strategic acquisition of distance learning delivery tools and avoids potentially insurmountable financial commitments (Cronin, 1994, pg. 247; Brown, 1997). And finally, aligning utilization of organizational technology with company priorities regarding distance training, facilitates internal cooperation and collaboration and increases communication of associated business objectives. Opportunities are recognized and innovation is embraced (Cronin, 1994).

As an organization evolves from a level of immaturity to a level of sophistication in its application and utilization of technology to deliver distance learning, it experiences this stage of transition that is pivotal to its evolutionary progress. To successfully move to the next level of technology capability for distance learning, an organization must effectively engage all members of the organization. Individuals will not buy-into or support evolving distance learning policies and procedures if they lack confidence in the system, see limited pay-off, or disagree with values and/or concepts propagated by the core steering committee (Schreiber, 1996; Robinson and Robinson, 1996).

The following practices and processes facilitate the establishment of organizational policies for distance learning and engage staff and management support during transition (extrapolated from: Robinson and Robinson, 1996; Bridges, 1988; and Moss-Kanter, 1983): (a) increase parameters within which individuals may contribute ideas and suggestions regarding technology for delivering distance training; (b) increase parameters within which individuals can make decisions regarding development and implementation of distance learning; (c) develop policies and procedures which provide accurate and timely information about commercial products, services, and current corporate technological capabilities; (d) modify work processes that inhibit broad-based collaboration across disciplines; and (e) ensure that associated administrative tasks are directly focused on processes of design, development and delivery of the distance training events.

Institutionalization of Distance and Distributed Learning Efforts

The existence of corporate policies and procedures regarding distance training, and the communication of associated business objectives, facilitate the phenomenon of "whole-company" ownership for distance learning. Cronin identifies whole-company ownership as an organizational attribute which guides transition and growth (1994, p. 250). The corporation or agency which exhibits Stage 4 behaviors has established a distance learning identity and conducts systematic assessment of distance training events with an organizational perspective.

Traditional evaluation of distance learning includes assessment of student interaction, instructor capabilities, degree of knowledge acquisition and skills development, and overall return-on-investment. Evaluation of distance learning from an organizational level (or whole-company perspective) may include assessment of the following additional characteristics: learner-learner and learner-instructor interactions, learner motivation, quality assurance, business-driven performance objectives, organizational support, contributions of interdisciplinary design and implementation teams, hardware and software usability, access to multiple delivery media, impact of organizational culture on implementation of distance learning, impact of distance learning on organizational culture, organizational costs/benefits, and evidence of institutionalization of efforts (Cronin, 1994; Newman, 1997; Steward, 1995; Schreiber, 1996).

The ultimate level of technology capability for implementing distance training is illustrated by the organization that understands the strengths and weaknesses of various delivery tools and maximizes utilization of the technology. This organization is then able to successfully institutionalize its efforts in distance and distributed learning. (See chapter three of *Distance Training: How Innovative Organizations are Using Technology to Maximize Learning and Meet Business Objectives*, edited by Schreiber and Berge, for further discussion of the strengths and weaknesses of organizational technology for distance training.)

Conclusions: Overcoming Barriers to Institutionalization of Distance Training Efforts

Corporations, government agencies, and nonprofit institutions look to distance training to provide self-paced learning opportunities and cost-effective professional development solutions to a significantly larger population of staff and customers than traditional instructor-led classroom strategies. Yet many organizations acknowledge limited return for their extended efforts. Initial training course redesigns and related materials development, as well as, establishment of new management and operational procedures, and inaccurate cost estimates, all take their toll and impact the success of distance and distributed learning. And for the organization that is mature in its technological capabilities for distance training, effective implementation of online courses and interactive television may occur, however, the company or agency wrestles with how to institutionalize its efforts so that the distance learning activities becomes part of the profile of the organization.

There are two key behaviors in which a corporation, government agency, or nonprofit organization must participate to overcome barriers to interdisciplinary efforts to maximize use of technology and institutionalize the organization's distance learning efforts. These include establishment and empowerment of an interdisciplinary core distance learning team, and development of and adherence to an organizational technology plan.

A core distance learning team provides the vehicle for increasing communication (vertically and horizontally) within the institution, providing clear explanations regarding cause-and-effect as related to technology and learning, and defining standards of performance and accountability of technology-based training. Institutionalization of distance training efforts will occur when individuals across the organization buy into and support evolving distance learning policies and procedures communicated by the core team. However, technical and non-technical staff alike must have confidence in the team and the organizational system it represents, see significant pay-off from the distance training efforts, and agree with the values and/or concepts propagated by the core team.

Although understanding the significance of collaboration among diverse experts in the core distance learning team is critical to understanding the ongoing maturation by an organization in its capability to support technology-based distance training, it is also necessary to understand corporate and government cultures as they greatly influences policy and management decisions which guide procurement and utilization of the hardware and software for distance training. Thus, development and adherence to an organizational technology plan becomes critical to institutionalizing distance training efforts.

An organizational technology plan provides policies and procedures for analyzing cost-benefits, allocating resources, and controlling budgets. It describes "how" the technology of the organization will support, facilitate, and sustain the organization's goals for web-based, interactive television, and/or other computer-mediated instruction. Also, an organizational technology plan provides a clear description of related "core costs" (the cost of doing business), and "marginal costs" (non-documented overhead or embedded costs) for at least a period of two to three years.

In concluding, remember, it is the organization with a "Stage 4" *Distance Learning Capability Profile* which exhibits the strongest success rate for designing and implementing distance training. This type of organization has evolved into an institution that facilitates interdisciplinary teamwork, understands the strengths and weaknesses of information and communication technology, manifests distributed decision-making, supports broad access to organizational technology, and is receptive to innovative budgeting strategies. The Stage 4 organization also recognizes a dynamic core distance learning team and provides comprehensive documentation of an organization-level technology plan.

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Autobiographical Sketch

Deborah A. Schreiber, Ed.D., is an independent consultant recognized for her work in designing corporate training programs which utilize communication and instructional technology for onsite and distance learning. Dr. Schreiber teaches computer-based training and distance learning at the University of Maryland, Baltimore County, and is an active member of the United States Distance Learning Association. Dr. Schreiber also participates in the National Science Foundation's panel review of Small Business Innovation Research (SBIR) program proposals.

Dr. Schreiber is coauthor of the recently published book *Distance Training: How Innovative Organizations are Using Technology to Maximize Learning and Meet Business Objectives*. Jossey Bass Publishers, Inc. Due for distribution September 1998.

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